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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/814,482

03/31/2004

Toshiharu Furukawa

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05/11/2006

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EXAMINER

GOODWIN, DAVID J

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 05/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/814,482

Applicant(s)

FURUKAWA ET AL.

Examiner

David Goodwin

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 16-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/27/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1 through 15 in the reply filed on May 4, 2006 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 through 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Forbes (US 2004/0217391).
4. Forbes teaches a semiconductor device. Said device comprises a substrate (704) and an active layer (712). Said active layer (712) having a strained region (paragraph 0043). An insulating layer (710) disposed between the substrate (704) and the active layer (712), said insulating layer having a thickened region underlying the strained region and exerting a tensile strain thereon (fig 7) (paragraph 0043).
5. Regarding claim 2.
6. Said insulating layer is a buried oxide (paragraph 0043). Said active layer is silicon (paragraph 0043).
7. Regarding claim 3.

8. Said device further comprises a source (724) defined in said active layer and a drain (722) defined in said active layer (fig 7) (paragraph 0043). A channel (726) is defined between the source and drain a disposed in said strained region of said active layer (fig 7).

9. Regarding claim 4.

10. A gate electrode (728) is formed over the active layer (712) and defining a channel (726). Said electrode is electrical isolated from said active layer (fig 7).

11. Regarding claim 5.

12. The strained region divides the gate electrode (728) (fig 7).

13. Regarding claim 6.

14. The gate electrode (728) overlies the channel (726) (fig 7).

15. Regarding claim 7.

16. The active layer comprises part of a semiconductor device (fig 7).

17. Regarding claim 8.

18. The active layer (726) is silicon the insulating layer (710) is oxidized silicon (paragraph 0043).

19. Regarding claim 9.

20. The insulating layer is silicon dioxide (paragraph 0043).

21. Regarding claim 10.

22. The substrate is silicon and the thickened region is oxidized substrate (paragraph 0043).

23. Regarding claim 11.

24. The tensile stress is sufficient to enhance electron mobility (paragraph 0041).
25. Regarding claim 12.
26. The oxide layer is thickened is about 100 angstroms thick (paragraph 0041).
27. Regarding claim 13.
28. The thicker region is thicker then the surround regions of insulating layer (fig 7).
29. Regarding claim 14.
30. First and second anchor regions disposed on each side of the strained region prevent the strained section from relaxing (fig 7).
31. Regarding claim 15.
32. Said first and second anchor regions comprise adjacent regions of active layer flanking the strained region (fig 7).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Goodwin whose telephone number is (571)272-8451. The examiner can normally be reached on Monday through Friday, 9:00am through 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DJG


Andy Hung
Primary Examiner
Art Unit 2818